ABSTRACT OF THE DISCLOSURE

A PtMn alloy film known as an antiferromagnetic material having excellent corrosion resistance is used for an antiferromagnetic layer. However, an exchange coupling magnetic field is decreased depending upon the conditions of crystal grain boundaries. Therefore, in the present invention, the crystal grain boundaries formed in an antiferromagnetic layer (PtMn alloy film) and the crystal grain boundaries formed in a ferromagnetic layer are made discontinuous in at least a portion of the interface between both layers. As a result, the antiferromagnetic layer can be appropriately transformed to an ordered lattice by heat treatment to obtain a larger exchange coupling magnetic field than a conventional element.